2016

Two Alumni Awarded NSF Research Fellowships

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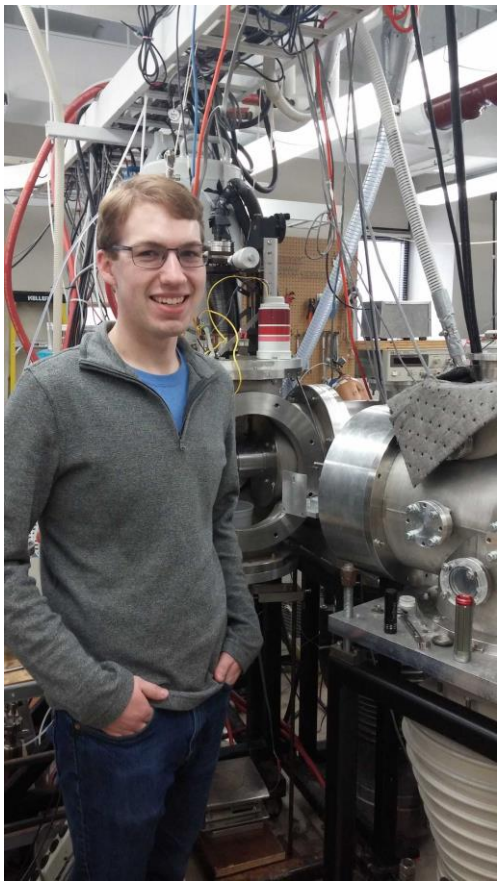
BLOOMINGTON, Ill.— Two Illinois Wesleyan University alumni have received prestigious National Science Foundation (NSF) Graduate Research Fellowships. Thomas Sobyra ’14 and Kelly Petersen ’10 are among only 2,000 **Graduate Research Fellowship** recipients from a field of nearly 17,000 applicants.

NSF’s Graduate Research Fellowships (GRF) provide three years of financial support ($34,000 annual stipend and $12,000 cost-of-education allowance to the graduate institution) for graduate study that leads to a research-based master’s or doctoral degree in science, technology, engineering and mathematics.

A **chemistry** major at Illinois Wesleyan, Sobyra is a second-year student in the Ph.D. program in inorganic chemistry at the University of Wisconsin. His research involves collisions at the air-liquid interface using time of flight mass spectrometry and molecular beam scattering. “The questions we ask are fundamental,” Sobyra said. “What does the surface of a liquid ‘look like’ atom by atom and how do surface and gas-phase molecules react when they come in contact? We are investigating high vapor pressure liquids in a vacuum, a new frontier in chemical dynamics following on the footsteps of gas-gas and gas-solid scattering experiments.”

Sobyra said his ultimate goal is to broaden the understanding of the interfacial region such that chemists can transform the current view from the basic understanding of molecules breaking apart near the surface to an in-depth breakdown of each possible pathway an impinging gas molecule could traverse.



Thomas Sobyra ’14 poses fundamental questions about the air-liquid interface.

He said his IWU experiences both in and out of the classroom prepared him for his Ph.D. program. The course “Advanced Inorganic Synthesis and Analysis” required students to design, propose, and complete three long-term projects and write analyses of the data collected. “The proposals we wrote were excellent practice for thinking about how to design and market proposed research,” Sobyra recalled. “The course helped prepare me as a scientist.”

His undergraduate research with Adjunct Professor of Chemistry James House helped prepare Sobyra succeed in his current research at Wisconsin. Most formative for Sobyra, however, were experiences organizing outreach programs as a member of the IWU Chemistry Club. “The research group I work for now is a huge proponent of science outreach and bringing what we learn in the laboratory to the community,” he said. “Being part of such events through Illinois Wesleyan cultivated my interest in conducting research and actually helped me in my [NSF] fellowship application because I have a longstanding commitment to outreach.”

Sobyra hopes eventually to become a professor at a university similar to Illinois Wesleyan. “I really want to teach, inspire and mentor undergraduates and help them pursue their goals.”

Kelly Peterson '10 is comparing genetic diversity in remnant and restored tallgrass prairie populations.

The other GRF recipient, Petersen, was an **environmental studies** major with an ecology concentration at Illinois Wesleyan. Her passion for ecology was fueled by an innate curiosity about the natural world, and she has a particular affinity for plants, said Given Harper, the George C. and Ella Beach Lewis Endowed Chair of Biology. As a student Petersen worked with Harper and a team of students and scientists from the U.S. and Canada on a cross-disciplinary research project documenting and quantifying levels of heavy metals in North American gray wolves. The paper was published in the *Bulletin of Environmental Contamination and Toxicology*, a refereed, scientific journal.

Petersen also served both as co-president and vice president of the IWU Student Sierra Coalition, successfully lobbying then-President Richard F. Wilson to sign on to the Talloires Declaration, an affirmation for sustainability created for and by presidents of higher education. Petersen was also a member of the GREENetwork, formulating a plan and successfully lobbying for the establishment of a small prairie plot adjacent to CNS. The plot today is used for educational purposes for biology classes, Harper said.

This fall Petersen will enter a Ph.D. program in ecology at the Odum School of Ecology at the University of Georgia (UGA). Her doctoral work will focus on comparing the genetic diversity in remnant and restored tallgrass prairie populations. This year she has served as a research technician at UGA's River Basin Center.